

KUZNETSOV, A.I.

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In reference to the letters about and reviews of A.I. Kusnetsov's book  
"Safety measures for electric installations," Elek, sta. 28 no.12;  
83-84 D '57. (MIRA 12:3)  
(Electric engineering--Safety measures)

AUTHOR: Kuznetsov, A. I. 94-13-7-22/25  
TITLE: The Values of Charge and Discharge Currents in Alkali Batteries (O velichine zaryadnogo i razryadnogo toka v shchelochnykh akkumulyatorakh)  
PERIODICAL: Promyshlennaya Energetika, 1958, Vol 13, Nr 7, p 38 (USSR)  
ABSTRACT: This note is in reply to a question from B. V. Barabash of Krasnoyarsk who asks how the current value influences chemical processes in alkali batteries and what is it that governs charge and discharge currents. In reply it is stated that the chemical processes that occur in alkali batteries are not fully understood but this is not of great practical importance. It is the practical consequences of using the right currents that matter. The charging current of an iron-nickel battery should be a quarter of the rated discharge current. If the charging current is less than this the discharge capacity of the battery will be reduced. Charging currents up to half the rated discharge current may be used but care must be taken to prevent overheating. If the electrolyte temperature rises to 40°C, there is

Card 1/2

94-13-7-22/25

The Values of Charge and Discharge Currents in Alkali Batteries

considerable loss of battery capacity. If the battery is fully discharged every time, its life will be reduced.

Card 2/2    1: Alkaline batteries - Electrical factors    2. Alkaline batteries - Maintenance    3. Alkaline batteries - Properties

MENSHCHIKOV, I.I.; KUZNETSOV, A.I., kand. tekhn. nauk, retsenzent;  
KULESHOV, A.P., inzh., red.

[Electrical safety measures in the machinery industry]  
Elektrobezopasnost' v mashinostroenii. Moskva, Izd-vo  
"Mashinostroenie," 1964. 186 p. (MIRA 17:7)

KUZNETSOV, A. I. inzh.

Self-discharge of storage batteries. Prom. energ. 19 no. 11:45-47 N 164.  
(MIRA 18:1)

USSR/Cultivated Plants. Potatoes. Vegetables. Melons.

M

Abs Jour: Ref Zhur-Biol., No 5, 1958, 20309.

Author : A. I. Kuznetsov.

Inst : Not given.

Title : Fertilizing Early Potatoes on an Occupied Fallow. (Udobreniye  
rannego kartofelya v zanyatom paru).

Orig Pub: Udobreniye i urozhay, 1957, No 5, 42-45.

Abstract: The application of  $N_{30}P_{40}K_{40}$  on the early Eperon potato in the loamy soils of Ramenskiy Rayon in Moscow Oblast' on a manure base (20 tons per hectare) raised the yield of tubers by 50 centners per hectare; of these almost 30 centners per hectare were through nitrogen fertilizers. In other tests on loamy and sandy soils  $N_{30}$  applied during planting as well as in supplemental feeding yielded on a base of manure 20 tons per hectare plus  $P_{40}K_{40}$  an equal

Card : 1/2

USSR/Cultivated Plants. Potatoes. Vegetables. Melons.

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Abs Jour: Ref Zhur-Biol., No 5, 1958, 20309.

CIA-RDP86-00513R000928110014-5

harvest boost (15-25%); in this same test the use of  $N_{60}$  was particularly effective when applied in half dosage while planting, with the other half as side dressing.

Card : 2/2

USSR/Cultivated Plants. Potatoes. Vegetables. Melons

M-5

KUZNETSOV, A. I., Cand Agr Sci -- (diss) "Some problems in the fertilization of early potatoes planted in sod-podsolic soils of the non-chernosem zone." Moscow, 1960. 15 pp; (Moscow Order of Lenin Agricultural Academy im K. A. Timiryazev); 150 copies; price not given; (KL, 17-60, 163)

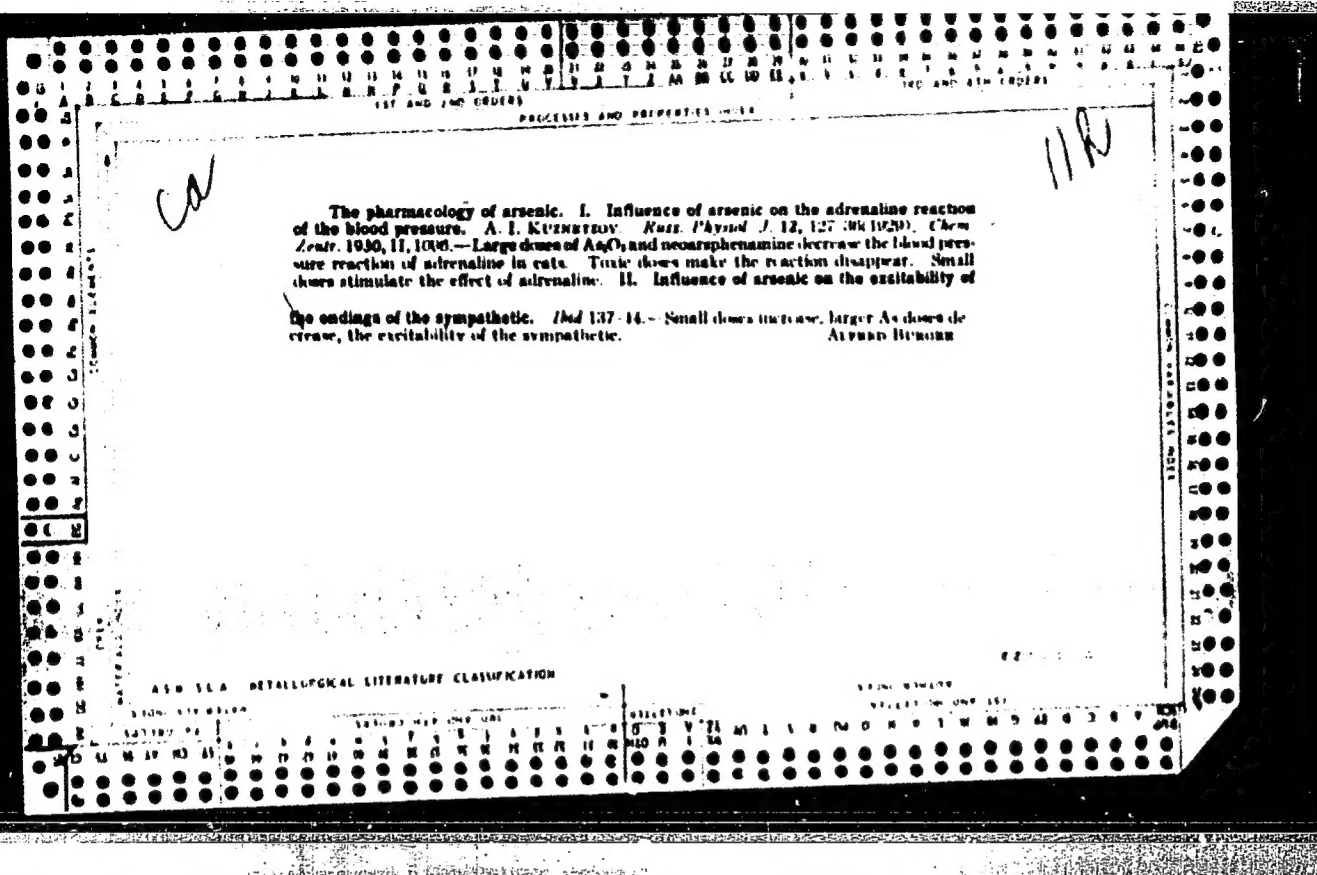
KUZNETSOV, Aleksandr Ivanovich

[Early potatoes in green fallow] Rannii kartofel' v zaniatom  
paru. Moskva, Izd-vo M-va sel'.khoz.RSFSR, 1961. 57 p.  
(MIRA 15:10)

(Fallowing)

(Potatoes)





117 AND 118 INDEXES

PROCESSES AND PROPERTIES INDEX

3RD AND 4TH COLUMNS

ca

The action of iron salts upon sympathetic nerve endings and upon the adrena-  
line reaction of blood vessels. A. I. KUZNETSOV AND A. D. NIKITIN. *Arkh. Biol. Nauk*  
29, 493-502(1929).—Fe salts increase the irritability of sympathetic nerve endings  
in the 3rd eyelid of the cat, as well as increase the adrena-  
line reaction of the vessels in an isolated rabbit ear. Similar effects were observed upon the vessels of isolated  
human placenta. The function of the isolated suprarenal gland was stimulated by Fe  
salts. Thus Fe salts act upon the sympathetic nerve elements (rabbit ear vessels)  
and upon the smooth muscle fibers (nervous placenta vessels). These effects are  
similar to those recently obtained by Kuznetsov with small doses of As. The thera-  
peutic effects of both heavy metals (Fe) and metalloids (As) probably is attributable  
to their similar action upon the sympathetic system. W. A. PARLAWER

AS 56 A METALLURGICAL LITERATURE CLASSIFICATION

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SELECTED

PROCESSING AND PREPARATION

*CR*

The pharmacology of arsenic. III. The action of arsenic on peripheral vessels and their reaction to adrenaline. A. L. KOSOVSKIY. *Arch. sci. Biol.* (U. S. S. R.) 31, 216-23 (1931); cf. C. A. 25, 4933-4. — On perfusion of the isolated rabbit ear 1:500,000  $As_2O_3$  produces a slight vasodilation and increases the vasoconstrictor effect of adrenaline in  $1:5 \times 10^6 - 1:25 \times 10^6$  dilns. perfused subsequently through the same vessels. Concentrations of  $As_2O_3$  of 1:250,000 to 1:500 dilute the blood vessels 8 to 35%. The effect of the 1:250,000  $As_2O_3$  is reversible, the dilatation induced by greater concns. is irreversible. These concns. of  $As_2O_3$  cause a weakening of (1.5-3 times) the vasoconstrictor effect of adrenaline subsequently applied, but they leave no effect upon the subsequent effect of  $NaCl$  in 1:500 and 1:1000. Neosuphenamine in  $1:5 \times 10^6 - 1 \times 10^5$  dilns. constricts the blood vessels of the ear (18-40%) and causes an av. two fold increase in the subsequent vasoconstrictor effect of adrenaline. Small doses of  $As_2O_3$  and neosuphenamine increase the irritability of the sympathetic nerve ending in peripheral vessels, while large doses lower it. IV. The effect of arsenic on the function of the isolated suprarenal gland. *Ibid.* 293-300. The isolated suprarenal glands of cattle were perfused with varying dilns. of  $As_2O_3$  and neosuphenamine for short and longer periods of time. The secretion of an adrenaline-like substance was detd. colorimetrically (Folin's method) and biologically, also the effect upon the susceptibility of the glands to nicotine after large doses of  $As_2O_3$  and the reaction of the blood vessels of the glands. Perfusion with  $As_2O_3$  in dilns. of  $1:12 \times 10^6 - 30 \times 10^6$  and neosuphenamine in dilns. of  $1:50 \times 10^6 - 1:3000$  of short duration increase the secretory function 2-4 times. More prolonged perfusion with  $1:5 \times 10^6 - 1:3000$   $As_2O_3$  and with  $1 \times 10^6 - 1:3 \times 10^4$  of neosuphenamine produce a depression after the initial secretory stimulation. During this depression the susceptibility of the suprarenal to the nicotine is diminished. Concd. solns. of  $As_2O_3$  (1:100-1:3000) and of neosuphenamine (1:30,000) cause a

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ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSED AND PROPERTY INDEX

11/17

The influence of morphine upon the adrenal-sympathetic system. A. I. Kuznetsov and L. G. Merkulov. *Arch. sci. Med.* (U. S. S. R.) 32, 470-5 (1932).—The experiments were performed on decapitated rats with or without adrenalectomy; the effect of morphine on the irritability of the splanchnic nerve being studied. Intravenous injection of 1 mg. per kg. increased the irritability, while doses of 10 mg. and higher gave at first a transient increase followed by a decrease. In the absence of the adrenals or on ligation of the lumbar veins this effect was not observed.  
W. A. Perlavitz

ASB-SLA DETALLURGICAL LITERATURE CLASSIFICATION

112

COMMON ELEMENTS

COMMON ALLOYS

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

RESEARCH TOPICS

1. ACTION OF MERCURY PREPARATIONS UPON THE MOTOR FUNCTION OF THE SMALL INTESTINE. N. P. GOROVY AND A. J. KUZNETSOV. *Arch. sci. biol.* (U. S. S. R.) 38, 757-62 (in English 762)(1935).--Novusrol (I) in small doses excites rhythmic contraction of the rabbit gut of increased amplitude and frequency; in moderate doses it also increases the tonus; in large doses it suppresses the contractions after a brief initial stimulation. The action of I is abolished in aspatropinized gut. Small doses of I increase the peristaltic effect of pilocarpine, while large doses depress this effect. The locus of action of mercurials is probably in the neuromuscular juncture (Auerbach's plexus) and the vagal nerve endings. Hg preps. in small doses act by increasing the tonus of the motor functions of the small intestine. W. A. Perlweis

RESEARCH TOPICS

1. ACTION OF MERCURY PREPARATIONS UPON THE MOTOR FUNCTION OF THE SMALL INTESTINE. N. P. GOROVY AND A. J. KUZNETSOV. *Arch. sci. biol.* (U. S. S. R.) 38, 757-62 (in English 762)(1935).--Novusrol (I) in small doses excites rhythmic contraction of the rabbit gut of increased amplitude and frequency; in moderate doses it also increases the tonus; in large doses it suppresses the contractions after a brief initial stimulation. The action of I is abolished in aspatropinized gut. Small doses of I increase the peristaltic effect of pilocarpine, while large doses depress this effect. The locus of action of mercurials is probably in the neuromuscular juncture (Auerbach's plexus) and the vagal nerve endings. Hg preps. in small doses act by increasing the tonus of the motor functions of the small intestine. W. A. Perlweis

1ST AND 2ND GROUPS																									
PROCESSES AND PROPERTIES																									
<p><i>CA</i></p> <p>The effect of certain drugs upon the gas exchange of striated muscle. A. M. Dubinskii and A. I. Kuznetsov. <i>Arch. sci. Biol.</i> (U. S. S. R.) 38, 763-8 (in English 768) (1933).--Blood was obtained from the femoral arteries and veins of cats and O and CO<sub>2</sub> were detd. by the Van Slyke method. Curare, in a dose which did not paralyze respiration, lessened the gaseous interchange. Roerine (0.002-0.0002 g. per 1 kg. of wt.) relieved this; it also increased the normal level of the gaseous interchange. Roerine produced not only peripheral action expressed by muscular fibrillations, but it also caused convulsions of central origin. Chloroform, ether and chloralose decreased the absorption of O and the formation of CO<sub>2</sub> by the muscles in the period of deep narcosis; chloralose least.</p> <p><i>W. A. Perlewein</i></p> <p><i>11k</i></p>																									
<p>ASB-3LA METALLURGICAL LITERATURE CLASSIFICATION</p>																									

KUZNETSOV, A. I.

Ca

114

Pharmacological investigation of the synthetic camphors of the Soviet Union. A. I. Kuznetsov. *Trav. i ud. meditsinskoj. Armii Rouge P. R. S. S. S. 1, 322-3; 14cm. Zentr. 1936, II, 2100.*—Animal experimentation on 2 preps. of synthetic l-camphor and on natural d-camphor indicated that the synthetic preps. had a more strongly irritating action. The action on the heart, the blood pressure, and the respiratory center is the same for both the synthetic and natural camphors. They exert a stimulating effect upon fatigue, a retarding effect upon the normal heart, they counteract arrhythmia, reduce the blood pressure, and stimulate the respiratory center.

M. G. Moore

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

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KUZNETSOV, A.I.		PROCESS AND PROPERTIES INDEX	
Ct		<p>Pharmaco-chemical and pharmacological investigation of some irritant expectorants. V. P. Kalashnikov and A. I. Kuznetsov. <i>Farmatsiya i Farmakol.</i> 1937, No. 7-10; <i>Chem. Zvest.</i> 1938, 1, 932.—When exid. by the usual methods (with NII, and ether), the gram of <i>Thermopsis lanceolata</i> R. Br. was found to contain 0.316% of alkaloids calcd. as <i>thermopsin</i>. This was 0.256% of the dry substance. According to the studies of Variakov (cf. C. A. 28, 878) the <i>Thermopsis</i> alkaloids act chiefly on the respiratory and vascular centers as well as the brain, producing a stimulating effect in small doses and a paralyzing effect in large ones. Nausea is also produced. That produced by oral administration of the preps. is of central and peripheral origin. Good clinical results were obtained with an infusion of <i>Thermopsis</i> (1-1.5:150-200) in cases of tuberculosis; better results were observed than with the use of senega and ipocucuanha. For white mice the min. toxic dose was 0.1 g., the lethal dose 0.15 g. per 20 g. body wt. The lethal dose of thermopsin was 0.0025/20 g. The lethal dose of methylcytiline was 0.00125; its min. toxic dose 0.0005. The roots of <i>Arenaria capillaris</i> showed a hemolytic index of 500; the saponin content is therefore lower than that of senega. Alkaloids could not be detected. Administration of 100 cc. of a 1:5 infusion produced an emetic effect on dogs. An infusion of <i>Stellaria dichotoma</i> roots had no effect on dogs.</p> <p style="text-align: right;">M. G. Miron</p>	17
ASB-SLA		TALLUMICAL LITERATURE CLASSIFICATION	
FORM DIVISION	SUBDIVISION	COLLATION	REVISION
1000000	1000000	1000000	1000000



KUZNETSOV, A. I.

CA

*Effect of narcotics on the carotid sinus reflex zone.* S. N. Avatyan and A. I. Kuznetsov. *J. Physiol.* (U. S. S. R.) 24, 1946 81 (1938). Perfusion of the isolated sinus caroticus of decerebrate cats with  $\text{CHCl}_3$ , chloral hydrate, chloroform, ether and urethan for brief periods stimulated the respiratory center. When the perfusion was continued for long periods the initial stimulation was followed by depression. Under the influence of large doses of the narcotics over long periods the sensitivity of the sinus receptors to various stimulating agents (arctylholine,  $\text{CO}_2$ , lobeline, nicotine, adrenaline, etc.) was reduced or completely disappeared. The analogous effects on the sinus caroticus and the suprarenal capsule are due to the common relation to the sympathetic nervous system. The influence of atropine and physostigmine on the sensitivity of the carotid sinus toward carbon dioxide and potassium cyanide. S. N. Avatyan. *Ibid.* 1947 5. Expts. on 14 decerebrate cats in which the isolated carotid sinus was perfused with dil. solns. of atropine and physostigmine showed no change in the sensitivity of that organ to  $\text{CO}_2$ . On the other hand, toward KCN there was a slight decrease in sensitivity after perfusion with atropine and an increase after perfusion with physostigmine. Through *Chem. Zentr.* 1939, I, 461. M. G. Mauer

KUZNETSOV, A. I.

11H

Importance of N. P. Kravkov's ideas in contemporary Russian pharmacology. V. V. Zakusov, A. I. Kuznetsov, M. P. Nikolaev, and B. S. Sutyagin. *Izvestiya Akad. Nauk SSSR, Ser. Khim.*, 1961, No. 6, 3-16(1961).—Historical and biographical

Johan F. Smith

ASB-11.6 METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CROSS										3RD AND 4TH CROSS									
KUZNETSOV, A. I.																			
<p>Latrodectus spider venom. A. I. Kuznetsov (S. M. Kirov Acad. of Military Med.). <i>Trav. Med. et Biol.</i> 7, No. 6, 36-41 (1944).—The black-death spider (<i>Latrodectus tredecimguttatus</i> or <i>L. tigrinus</i> spp. <i>erubus</i>) is dangerous to men, horses, cows, and camels but not to sheep. The venom spreads to the loins, shoulders, joints, and extremities. Symptoms include excitation of motor nerves, insomnia, cardiac pain, emesis, cyanotic lips, and salivation. Swelling occurs near the bite. The blood can sometimes be detoxified by repeated intravenous injections of 2-3% <math>\text{KMnO}_4</math> in 3-5 ml. doses, or by subcutaneous or intravenous injection of 100-600 ml. of 1-5% <math>\text{Na}_2\text{S}_2\text{O}_5</math>. Tests were made with frogs, mice, rats, rabbits, dogs, and birds. Even at a diln. of 1:127,000 the venom <i>in vitro</i> causes hemolysis and lysis of erythrocytes. Jullis. F. Smith</p>																			
<p>458.554 DETALLURGICAL LITERATURE CLASSIFICATION</p>																			
<p>1ST AND 2ND CROSS</p>										<p>3RD AND 4TH CROSS</p>									

KUZNETSOV, A. I.

Pharmacological properties of ammodendrine. S. N. Asratyan, V. N. Kovalenko, A. I. Kuznetsov, and P. P. Saksonov. Farmakol, i Toksikol, 9, No. 3, 12-20 (1946).-- Ammodendrine (I), an alkaloid from Ammodendron conollyi leaves (Orekhov and Proskurnina, C.A. 32, 2943<sup>8</sup>), is apparently an acetyltetrahydroanabasine. Its general effects and toxicity were studied with cats, rabbits, mice and frogs, with isotonic NaCl soln. in vivo and Ringer-Locke soln. in isolated organs. In vertebrates I stimulates and then depresses the central nervous system; the first stage is fleeting or absent in rabbits, mice, and frogs. Though initially a respiratory stimulant, I kills mammals by respiratory paralysis; the heart stops in diastole. Animals vary in their sensitivity to I according to their phylogenetic development; cats were most sensitive, frogs least so. The pressor or depressor effect of I depends on the vascular tonus. Repeated injections of I at short intervals exert tachyphylactic effects on blood pressure and respiration; examples include intravenous injection of I in doses up to 0.03 mg./g., repeated at intervals of less than 15 min., in decerebrated cats and cats under chloral narcosis. As compared with ganglion poisons like nicotine and anabasine, I has low toxicity. The av. lethal dose for mice is 0.385 mg./g. No myotropic effects were observed. Tests with isolated cat and frog hearts show no significant cardiac action. Tests with intestinal and uterine smooth muscle from rabbits, guinea pigs, and mice show only slight activity.

Julian F. Smith

KUZNETSOV, A.I., professor.

V.V.Savich as a pharmacologist. Farm.i toks. 10 no.1:3-17  
Ja-F '47.

(MLRA 7:2)

(Savich, Vladimir Vasil'evich, 1874-1946)

*Translation M-300, 30 Nov 55*

KUZNETSOV, A.I.

23607

DEYSTVIY• FENAMINA NA TsENTRAL'NUYu NERVNUYu SISTEMU. SBORNIK  
NAUCH. TURDOV (LENINGR. VET. IN-T), VIP. 10, 1949, C. 5-8.

SO: LETOPIS' NO. 31, 1949.

MEN'SHAKOV, P.G.; KUZNETSOV, A.I., prof., red.; CHUBINSKIY, V.V., red.;  
KRAYUKHIN, G.N., tekhn.red.

[Veterinary pharmacology] Veterinarnaya farmakologiya. Pod  
red.A.I.Kuznetsova. Moskva, Gos.isd-vo sel'khoz.lit-ry, 1949.  
344 p. (MIRA 13:1)  
(Veterinary materia medica and pharmacy)

KUZNETSOV, A.I.

On the problem of the codeine habit. Zhur.nevr. i psikh. Supplement:  
65 '57. (MIRA 11:1)

1. Kafedra psikhologii (zav. - prof. M.P.Kutanin) Saratovskogo  
meditsinskogo instituta.  
(CODEINE) (NARCOTIC HABIT)



17 02 NETSOV, A.I.  
MALKINA, M.G.; KUZNETSOV, A.I.

Thermoregulatory reflex as an indication of impairment of thermoregulation in schizophrenia [with summary in English]. Zhur.vys.nerv.deiat. 8 no.1:36-41 Ja-F '58. (MIRA 11:3)

1. Kafedra psikhiiatrii Saratovskogo gosudarstvennogo meditsinskogo instituta.

(SCHIZOPHRENIA, physiology,

thermoregulating reflex as index of temperature disorders in schizophrenia. Zhur.vys.nerv.deiat. 8 no.1:36-41 Ja-F '58. (MIRA 11:3)

KUZNETSOV, A.I.

Pathophysiology of chronic alcoholism. Trudy Semipal. med. inst.  
2:242-253 '59. (MIRA 15:4)

1. Kafedra psikhiiatrii Semipalatinskogo gosudarstvennogo meditsinskogo  
instituta (zaveduyushchiy kafedroy dotsent V.V.Lastovetskiy).  
(ALCOHOLISM)

KUZNETSOV, A.I.

Disturbance of hydrotic reactions in chronic alcoholism. Zdrav.  
Kazakh, 21 no. 4:44-49 '61. (MIRA 14:4)

1. Iz kafedry psikiatrii i kafedry patfiziologii (zav. - doktor  
meditsinskikh nauk T.A. Nazarova) Semipalatinskogo meditsinskogo  
instituta.

(ALCOHOLISM) (PERSPIRATION) (REFLEXES)

KUZNETSOV, A.I.

Case of adenoma of the pancreas with psychic disorders.  
Zhur. nevr. i psikh. 62 no.3:409-412 '62. (MIRA 15:3)

1. Psikhonevrologicheskaya bol'nitsa (glavnyy vrach Ye.N.  
Marushchak) Komsomol'ska-na-Amure.  
(PANCREAS—TUMOR) (HYPOGLYCEMIA) (PSYCHOSES)

KUZNETSOV, A.I. (Semipalatinsk)

Results of using aminazine in alcoholic abstinence (symptom)  
and its effect on thermoregulating reactions. Trudy Gos.  
nauch.-issl. inst. psikh. 38:360-367 '63. (MIRA 16:11)

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KUZNETSOV, A.I.; SIMONOV, D.A.

Automatic machine-part production counters on automatic lathes  
and other metal-cutting machines. Priborostroenie no.9:11 8 '56.  
(MLRA 9:10)

(Counting devices) (Machinery, Automatic)

KUZNETSOV, A.I., inzhener; CHECHNLYUK, Ya.Z., inzhener.

Automatization of the opening and closing of gates using mechanisms  
with pneumatic cylinders. Mashinostroitel' no.7:43-44 J1 '57.

(Pneumatic machinery) (Automatic control) (MLRA 10:8)

KUZNETSOV, A.I., inzh.; CHECHNELYUK, Ya.Z., inzh.

Machine for manipulating large-size pieces. Izobr. v SSSR 3 no.2:16  
F '58. (MIRA 11:3)

(Machine-shop practice)



KUZNETSOV, A.I., inzh.

Machine for edging disks. Mashinostroitel' no.3:24  
Mr '60. (MIRA 13:6)  
(Machine tools)

**"APPROVED FOR RELEASE: 06/19/2000**

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**APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000928110014-5"**

PANCHENKOV, G.M.; KUZNETSOV, A.I.; MAKAROV, A.V.

Possibility of separating nitrogen isotopes by the chemical exchange  
method using complex formation. Dokl. AN SSSR 164 no.5:1101-1103 0  
165. (MIRA 18:10)

1. Moskovskiy gosudarstvennyy universitet. Submitted March 6, 1965.

KUZNETSOV, A.I., inzhener-stroitel'.

Insure preservation of plans and specifications of buildings and  
installations. Gor.khoz.Mosk. 28 no.9:32 S '54. (MLRA 7:10)  
(Architecture--Designs and plans)

KUZNETSOV, H. I.

STRAMENOV, Andrey Yevger'yevich, doktor tekhnicheskikh nauk, professor;  
BAKUTIS, V.M., kandidat tekhnicheskikh nauk, dotsent, redaktor;  
KUZNETSOV, A.I., arkhitekt, redaktor; FRIDBERG, G.V., inzhener,  
redaktor; USTRUGOVA, N.L., arkhitekt, redaktor; PERSON, M.W.,  
tekhnicheskii redaktor

[Engineering problems in city planning] Inshenernye voprosy planirovki gorodov. Moskva, Gos. izd-vo lit-ry po stroit. i arkhit., 1955. 361 p.

(MLRA 8:6)

(Municipal engineering) (City planning)

BOBRYSEV, P.; KUZNETSOV, A.

Vilnius. Stroitel' 2 no.8:5-7 Ag '56.  
(Vilnius--Building)

(MLBA 9:12)

KUZNETSOV, A.

Large-panel houses constructed in the virgin lands. Stroitel'  
no.7:25 J1 '57. (MLRA 10:9)  
(Novo-Orsk--Precast concrete construction)



KUZNETSOV, A.I.

Concrete construction combines. Biul.tekh.-ekon.inform. no.5:37-39  
'58. (MIRA 11:7)  
(Prestressed concrete construction)

KUZNETSOV, A.; DOBRYNIN, I.

Scaffolds on tubular supports. Stroitel' no.9:11 '58.  
(MIRA 13:3)  
(Scaffolding)

ANDRONOV, G.A.; BORDUKOV, I.V.; KUZNETSOV, A.I.

Improve the quality and importance of regional planning  
projects. Prom.stroi. 38 no.4:2-5 '60.  
(MIRA 13:8)

1. Ministerstvo kommunal'nogo khozyaystva SSSR (for Andronov).
2. Gosstroy SSSR (for Bordukov). 3. Giprogor (for Kuznetsov).  
(Regional planning)

KUZNETSOV, A.

Literature which spreads information about advanced techniques. Na  
stroj. Ros. no.7:39 J1 '61. (MIRA 14:8)  
(Construction industry--Technological innovations)

U 47098-56 EWT(d)/EWP(1) IJP(c) BB/CG

ACC NR: AR6016013

SOURCE CODE: UR/0271/66/000/001/A009/A009

AUTHOR: Kuznetsov, A. I. ; Shamayev, Yu. M.

413

TITLE: Analysis and synthesis of circuits containing magnetic cores with a rectangular hysteresis loop and reactive elements

SOURCE: Ref. zh. Avtomat. telemekh. i vychisl., tekhn., Abs. 1A54

REF SOURCE: Tr. Mosk. energ. in-ta. vyp. 60, ch. I. 1965, 63-82

TOPIC TAGS: magnetic core, hysteresis loop, capacitor

ABSTRACT: Rectangular hysteresis loop cores are generally used for storage of information. while reactive elements (capacitors, inductors) are connected to the loop couplers between the cores and used for the delay of signals. Processes occurring in the circuit during charge of capacitance through the resistor and core winding and during core magnetic reversal from the capacitance discharged through the resistor are studied. It is demonstrated that in this circuit processes are characterized by nonlinear differential equations which can be quite accurately

Card 1/2

UDC: 62-523:681.142.672

L 47098-66

ACC NR: AR6016013

0

reduced to algebraic equations. Experimental results confirming the accuracy of the proposed methods of calculation are given. Orig. art. has: 9 illustrations and a bibliography of 10 titles. [Translation of abstract] [DW]

SUB CODE: 09/

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Card 2/2

KUZNETSOV, A.I.; SHAMAYEV, Yu.M.

Analysis and synthesis of networks containing magnetic cores  
with rectangular hysteresis loops and reactive elements.

Trudy MEI no.60 pt.1:63-82 '65.

(MIRA 19:1)

KUZNETSOV, A.I.

Analysis and design of a passive ferrite-condenser shift  
register with regulated discharge circuit. Trudy MEI  
no. 60 no. 3:83-98 '65 (MIRA 19:1)



**"APPROVED FOR RELEASE: 06/19/2000**

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THE FOLLOWING SECTION WAS TRANSFERRED TO

"APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000928110014-5

ACCESSION NR: AP5012445

APPROVED FOR RELEASE: 06/19/2000

CIA-RDP86-00513R000928110014-5"

KUZNETSOV, A.K.; SHIFMAN, M.Ye.; KONONOVICH, I.G.; YEVDOKIMOV,

Brief reports. Zav.lab. 23 no.7:878-879 '57.

(MLRA 10:8)

- 1.Kiyevskiy mekhanicheskoy zavod for Shifman, Kononovich)
- 2.Institut obshchey i neorganicheskoy khimii Akademii nauk  
SSSR (for Yevdokimov)  
(Laboratories—Apparatus and supplies)

KUZNETSOV, A. K.

KUZNETSOV, A. K. Thick gypsum bandage in injuries to the extremities of horses.

Source: Veterinariya; 22; 6; June 1945 uncl  
TABCCN

KUZNETSOV, A.K., detsent (Leningrad)

Novocaine block for skin receptors in surgical diseases.  
Veterinariia 32 no.1:68-73 Ja '55. (MIRA 8:2)  
(NOVOCAINE) (VETERINARY SURGERY) (HORSES--WOUNDS AND INJURIES)



KUZNETSOV, A.K., (Docent, Leningrad Veterinary Institute).

"Novocain-penicillin therapy in surgical diseases..."  
Veterinariya, vol. 39, no. 3, March 1962 pp. 75

NIKANOROV, Vasil'y Alekseyevich, prof.; KUZNETSOV, Aleksey  
Kirillovich, dots.; POLYAKOV, P.Ya., red.

[Veterinary surgery and orthopedia] Veterinarnaia khi-  
rurgiya i ortopediya. Leningrad, Kolos, 1965. 483 p.  
(MIRA 18:7)

ACC NR: AP7003299 (4)

SOURCE CODE: UR/0062/66/000/012/2073/2079

AUTHOR: Kuznotsov, A. K.; Koler, E. K.

ORG: Institute of Silicate Chemistry im. I. V. Grebenshchikov, Academy of Sciences, SSSR (Institut khimii silikatov Akademii nauk SSSR)

TITLE: Rare earth zirconates and their physicochemical properties. Report No. 3: Some regularities of formation and physicochemical and technical properties of zirconates

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1966, 2073-2079

TOPIC TAGS: zirconate, rare earth compound, *physical chemistry property*

ABSTRACT: The object of the study was to briefly expose certain regularities in the formation of rare earth zirconates and to compare their physicochemical and technical properties with the ionic radius and atomic number of the rare earth element in the periodic system. Complex, thermal, x-ray structural, chemical and microstructural analyses were employed. The mechanism of formation of the zirconates on coprecipitation from salt solutions is the same for all the rare earth oxides studied. The height of the peaks of the first exothermic effect due to crystallization of the rare earth zirconate from the amorphous coprecipitation product decreases in the series  $\text{La}_2\text{O}_3 - (\text{CeO}_2) - \text{Pr}_2\text{O}_3 - \text{Nd}_2\text{O}_3 - \text{Sm}_2\text{O}_3 - \text{Y}_2\text{O}_3, \text{Yb}_2\text{O}_3$ . This corresponds to a decrease in the reactivity of these oxides as compared to zirconium dioxide. The latter apparently forms the compounds  $\text{Ln}_2\text{Zr}_2\text{O}_7$  (where Ln is a rare earth element) having the pyro-

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UDC: 541.4+546.831+546.65

ACC NR: AP7003299

chlore structure with all the oxides of trivalent rare earth elements. With the exception of  $\text{Ce}_2\text{Zr}_2\text{O}_7$ , the zirconates studied are stable on heating in air. The physicochemical properties of rare earth zirconates (lattice parameter, x-ray density, specific gravity, refractive index and melting point) are closely related to the atomic number and the ionic radius of the rare earth element. Orig. art. has: 6 figures and 1 table.

SUB CODE: 07/ SUBM DATE: 02Jul64/ ORIG REF: 002/ OTH REF: 008

Card 2/2

**"APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000928110014-5**

**APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000928110014-5"**

KUZNETSOV A.K.

USSR/Physical Chemistry, Thermodynamics, Thermochemistry,  
Equilibria, Phys-Chem. Anal. Phase-Transitions.

B-8

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22299.

Author : E. K. Keler, A. K. Kuznetsov

Inst : Not given

Title : The application of a complex thermoanalysis to physico-chemical and technical researches.

Orig Pub : Zh. neorgan. khimii, 1956, I, No 6, 1292-1295.

Abstract : A report on III Allunion conference on phys-chemical analysis. (Moscow, 1955).

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-103-

Figure 1

...the decomposition of  $\text{CaCO}_3$  because the decomposition process culminates at lower temp. and ends before the expansion begins. At the start of the expansion of stabilized  $\text{ZrO}_2$ , the amt. of  $\text{CaZrO}_3$  in the phase was 4.51%.

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SOV-120-58-1-36/43

AUTHORS: Kalinin, P. D. and Kuznetsov, A. K.

TITLE: Programmed Temperature Control (Programmnoye regulirovaniye temperatury)

PERIODICAL: Pribury i Tekhnika Eksperimenta, 1958, Nr 1, pp 136-137 (USSR)

ABSTRACT: A description is given of a relatively simple attachment to an electronic potentiometer which will give temperature control according to any preset law. The law is given by the shape of a thin metal foil or the profile of a thin wire as shown in Fig.1. A special contact is made to follow the outline of the specially prepared foil or wire. This motion is then transformed into an electric signal which is used to control the temperature of a furnace in the required manner. The electrical circuit is shown in Fig.2. There are 3 diagrams and 2 English, 4 Soviet references.

ASSOCIATION: Institut khimii silikatov AN SSSR (Institute of the Chemistry of Silicates, Academy of Sciences of the USSR)

SUBMITTED: June 24, 1957.

1. Temperature--Control
2. Potentiometers--Applications
3. Furnaces--Control systems

Card 1/1

AUTHOR: Kuznetsov, A. K. 107/73-3-3-20/28

TITLE: II. The Effect of the addition of Boron Anhydride on the Formation of Calcium Zirconate (II. "Vliyeniye tselovogo borogo anhidrida na obrazovanie tsirkonata kalcia")

PERIODICAL: Zhurnal neorg. i priklad. khimii, 1958, Vol. 1, No. 3, pp. 1339-1345 (USSR)

ABSTRACT: The kinetics of the formation of calcium zirconate under the influence of mineralizers was investigated. The additions of smaller quantities of boric acid to the initial mixture  $\text{CaCO}_3\text{-ZrO}_2$  increase the reaction rate for the formation of calcium zirconate within the temperature range of from 700-1200°C. The addition of  $\text{B}_2\text{O}_3$  decreases the yield of calcium zirconate with solid solutions of calcium oxide forming in zirconium oxide. This effect is explained by the fact that  $\text{B}_2\text{O}_3$  binds a part of the calcium oxide from the reaction mixture  $\text{CaCO}_3\text{-ZrO}_2$  (1:1) under the formation of calcium borate. The boron anhydride addition considerably increases the sintering temperature of calcium zirconate (1150-1300°C). At these

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NOV/70-1-8-50/48  
II. The effect of the addition of Boron anhydride on the formation of Calcium Zirconate

temperatures a liquid phase is formed. The granular size of  $\text{CaZrO}_2$  at 1150-1600°C is increased from 2 to 10  $\mu$ .

Also radiographic investigations of the mixture  $\text{CaCO}_3\text{-ZrO}_2$  (1:1) with additions of boron anhydride were carried out. There are 7 figures, 2 tables, and 12 references, 6 of which are Soviet.

ASSOCIATION: Institut Khimii silikatov Akademii nauk USSR  
(Institute of Silicate Chemistry, AS USSR)

SUBMITTED: June 10, 1957

Card 2/2

KUZNETSOV, A.K.

Reaction of calcium zirconate with the  $B_2O_3$  mineralizer. Zhur.  
prikl.khim. 31 no.12:1799-1805 D '58. (MIRA 12:2)

1. Institut khimii silikatov AN SSSR.  
(Calcium zirconate) (Boron oxides)

AUTHORS: Kalinin, P. D., Kuznetsov, A. K. SOV/76-32-7-30/45

TITLE: An Automatic Recording Balance (Avtomaticheskiye registriruyushchiye vesy)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 7, pp 1658 - 1660 (USSR)

ABSTRACT: In the introduction some designs of balances for measurements according to Chevenard (Ref 9) and large thermal balances with a Kurnakov pyrometer are described. The authors describe an apparatus which automatically records the weight loss and the furnace temperature, and which consists of an analytical scale, a selenium photoelement ~~FSS-3U~~, an electronic amplifier UA-109, a reversing motor ~~RD-109~~, a potentiometer ~~PP~~, an electronic double-point potentiometer ~~RPP~~ -09 and a furnace. From the schematic representation and the description may be seen that the photoelement is divided into two halves, by which means the balancing on a reduction of weight ~~or an~~ an increase of weight may be obtained. A platinum wire serves for the compensation of the weight changes; it is calibrated with analytical weights. Hence, the potentiometer is also calibrated in weight units. The measuring accuracy of the weight loss is given to be

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An Automatic Recording Balance

SOV/76-32-7-30/45

0,1g and less, the analytical scales having a sensitivity of 0,001 g. A diagram of the dehydration of boric acid is given as example, from which may be seen that the separation of water takes place in two stages: the first at 120 - 250° and the second at 250 - 340°, which corresponds with data in publications. There are 3 figures and 11 references, 6 of which are Soviet.

ASSOCIATION: Institut khimii silikatov, AN SSSR, Leningrad (Leningrad, Institute of Silicate Chemistry, AS USSR)

SUBMITTED: December 9, 1957

1. Balances--Design
2. Balances--Performance
3. Recording devices--Applications
4. Dehydrators--Control systems
5. Control systems--Calibration

Card 2/2

KUZNETSOV, A. K.: Master Tech Sci (diss) -- "The conditions for the formation and sintering of calcium zirconate". Leningrad, 1959. 16 pp (Acad Sci USSR, Inst of the Chem of Silicates), 150 copies (KL, No 13, 1959, 106)

15-2400

27910

S/080/61/034/010/002/016  
D231/D301

AUTHORS: Keler, E. K., and Kuznetsov, A. K.

TITLE: Synthesis and physical-technical properties of the zirconates of strontium and barium

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 10, 1961, 2146-2153

TEXT: The aim of the present work is to make a fuller study of Sr and Ba zirconates and of the properties of ceramics based on them. The basic methods used were those of complex thermal analysis, X-ray phase, chemical phase and microscopic analysis. Thermographic investigation of the formation of  $\text{SrZrO}_3$  and  $\text{BaZrO}_3$  shows individual peculiarities; for the mixture  $\text{SrCO}_3\text{-ZrO}_2$  there are two endothermic effects: the first in the range 900-950°, corresponding to a polymorphic transition of  $\text{SrCO}_3$  from a rhombic to a hexagonal form; the second at about 1190°, at which  $\text{SrCO}_3$  dissociates. Loss of weight begins at 800° and proceeds very vigorously in the 900-1150°

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D231/D301

Synthesis and...

range. For the mixture  $\text{BaCO}_3\text{-ZrO}_2$ , four endothermic effects are evident: the first two at  $820^\circ$  and  $980^\circ$ , corresponding to a polymorphic transition of  $\text{BaCO}_3$ ; the third in the  $1000\text{-}1260^\circ$  range, due to dissociation of the  $\text{BaCO}_3$ ; and the fourth with a temperature minimum at  $1150^\circ$  resulting from the fusion of basic  $\text{BaO.BaCO}_3$  in the undissociated  $\text{BaCO}_3$ . Both the Sr and Ba compounds show increased volumes of the samples in the given temperature range. In the case of Sr, the increase takes place after decomposition of the  $\text{SrCO}_3$ , while with Ba the increase runs parallel with the dissociation of  $\text{BaCO}_3$ . Chemical analysis confirmed that there is a connection between volume increase and formation of the zirconate. At  $900^\circ$  (when volume increase commences) the percentage of  $\text{SrZrO}_3$  present is 3.86, and at  $1200^\circ$  (temperature of maximum increase) this figure is raised to 72.9. Similar figures are shown for  $\text{BaZrO}_3$  (at  $900^\circ$  - 15.8% and at  $1050^\circ$  - 63.9%). X-ray diffraction pattern analysis shows that formation of  $\text{SrZrO}_3$  is practically

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Synthesis and...

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D231/D301

complete at  $1200^{\circ}$  and that samples of the  $\text{BaCO}_3\text{-ZrO}_2$  mixture fired at  $1050^{\circ}$  show diffraction patterns analogous to pure  $\text{BaZrO}_3$ ; their form is unchanged with a further rise of temperature. The chief proportion of  $\text{SrZrO}_3$  is formed in the first 15 minutes and equilibrium is reached in 1 hour. Similar results are recorded for  $\text{BaZrO}_3$ . Articles made of Sr or Ba zirconates, even at high firing temperatures, have a high porosity, and an effective mineralizer was found in boric acid, previously described in literature. Addition of this agent lowered the sintering temperature and generally improved the ceramic properties of the "body," but it was discovered that boric acid lowered the percentage of zirconate and led to the formation of a solid solution (this in the case of  $\text{CaZrO}_3$ ). Additions of tristrontium borate and tribarium borate respectively to zirconates of Sr and Ba permits lowering of the sintering temperature of ceramics based on them by  $200^{\circ}$ ; they also improve their physical and technical properties. Sr and Ba zirconates with additions of mineralizers can find use not only in electro-ceramics, but also as high heat-resistance materials. There are

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X

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D231/D301

Synthesis of...

8 figures, 1 table and 14 references: 10 Soviet-bloc and 4 non-Soviet-bloc.  
The reference to the English-language publication reads as follows: P. S.  
Dear, Bl. Politech. Inst., 51 (8), Eng. exp. stand. ser., 126, 1-10 (1958),

SUBMITTED: December 29, 1961 [Abstractor's note: Misprint--1960 under-  
stood]

X

Card 4/4

KUZNETSOV, A.K. (Leningrad)

Application of electronic potentiometers for recording curves  
of ordinary and complex thermal analysis. Zhur.fiz.khim. 35  
no.12:2807-2810 D '61. (MIRA 14:12)

1. Institut khimii silikatov.  
(Potentiometer) (Thermal analysis)

FAN' FU-KAN [Fan Fu-k'ang]; KUZNETSOV, A.K.; KELER, E.K.

Phase relations in the system  $Y_2O_3 - ZrO_2$ . Report No.1: On the existence of yttrium zirconate and its physicochemical properties. Izv.AN SSSR.Otd.khim.nauk no.7:1141-1146 JI '62. (MIRA 15:7)

1. Institut khimii silikatov AN SSSR.  
(Yttrium oxide) (Zirconium oxide) (Phase rule and equilibrium)

34968  
S/080/62/035/002/003/022  
D204/D302

15.2210

AUTHORS: Keler, E. K. and Kuznetsov, A. K.

TITLE: The formation and physico-technical properties of  
yttrium oxy-orthosilicate  $Y_2O_3.SiO_4$

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 2, 1962, 250-256

TEXT:  $Y_2O_3.SiO_2$  was prepared from  $Y_2O_3$  (grain size 1 - 3  $\mu$ ) and  
cristobalite (3 - 6  $\mu$ ) by heating at 1100, 1200, 1300, 1400, 1500  
and 1600°C for 2-hour periods, regrinding and reheating. The pro-  
ducts were analyzed by chemical, X-ray and thermal methods. It was  
found that the yield of  $Y_2O_3.SiO_2$  rose from 8.8% at 1200°C to 55.2%  
at 1500°C and was 93.0% at 1600°C. The reactions were slow up to  
1300°C and fairly rapid, especially initially, above 1500°C. No ap-  
preciable thermal or volume changes were observed during the com-  
bination apart from the shrinkage due to sintering. Electron mi-  
croscopy showed that the product formed a dense, adherent layer

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The formation and ...

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D204/D302

around the  $\text{SiO}_2$  particle through which  $\text{Y}_2\text{O}_3$  had to diffuse - this is regarded as the rate controlling process. After 2 hours at  $1600^\circ\text{C}$  the product retained 25.4% porosity which fell to 2.9% when the temperature was raised to  $1800^\circ\text{C}$ . 2% amounts of  $\text{BaO}$ ,  $\text{SrO}$ ,  $\text{PbO}$ ,  $\text{ZnO}$ ,  $\text{B}_2\text{O}_3$ ,  $\text{Bi}_2\text{O}_3$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{TiO}_2$ ,  $\text{V}_2\text{O}_5$  and  $\text{MoO}_3$  were added to mixtures sintered at  $1600^\circ\text{C}$  for 2 hours in an effort to produce a dense material. Alumina was found to give the best results (1.6% porosity), the optimum quantity being 1%. The action of  $\text{Al}_2\text{O}_3$  is discussed. Electrical properties were measured on 25 mm dia. x 3 mm discs formed over 2 hours at  $1600^\circ\text{C}$ , without mineralizers, showing that  $\text{Y}_2\text{O}_3\cdot\text{SiO}_2$  is a semi-conductor, of resistivity =  $4.76 \times 10^7 \Omega\text{-cm}$ . 2% additions of  $\text{Al}_2\text{O}_3$ ,  $\text{B}_2\text{O}_3$ ,  $\text{Bi}_2\text{O}_3$  or  $\text{ZnO}$  increased this value to 1 -  $4.78 \times 10^{10}$ . The dielectric permeability was 17.9 without, and 12.8 - 16.5 with mineralizers. A number of mechanical and technological properties of the compound is listed. The silicate is refractory to  $1930^\circ\text{C}$  and resists the attack of  $\text{BeO}$ ,  $\text{MgO}$ ,  $\text{Al}_2\text{O}_3$ ,

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The formation and ...

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D204/D302

TiO<sub>2</sub>, ZrO, V<sub>2</sub>O<sub>5</sub>, MoO<sub>3</sub> and SiC to, but not above, 1400°C. There are 6 figures, 3 tables and 10 references: 8 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: C. E. Curtis, J. Am. Cer. Soc., 40, 8, 274, (1957); R. Roy, Am. Cer. Soc. Bull., 38, 4, 169, (1959).

SUBMITTED: January 25, 1961

Card 3/3



L 17057-63 FCS(f)/ENP(q)/EWT(m)/BDS S/062/63/000/004/001/022  
 AFFTC/ASD Pad JD/HW/JG  
 AUTHOR: Fan Fu-k'ang, Kuznetsov, A. K., and Keler, E.K.  
 TITLE: Phase relations in the system  $Y_2O_3$ -- $ZrO_2$ . 2. Solid solutions  
 PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk,  
 no. 4, 1963, 601-610  
 TEXT: This article is based on the dissertation of Fan Fu-k'ang and was  
 presented at the conference of the chief editors of journals of the Academy of  
 Sciences USSR on 12 June 1962. Zirconium-yttrium solid solutions can be used  
 possibly as solid electrolytes. However more data is needed on the  $Y_2O_3$ -- $ZrO_2$   
 system. A new diagram of state is proposed for the system  $Y_2O_3$ -- $ZrO$  in the  
 solid phase characterized by the presence of  $Y_2Zr_2O_7$ , absence of the single  
 phase field of the monoclinical solid solution, different position of the phase  
 boundaries of the solid solutions in the system. It was noted that the minimum  
 quantity of  $Y_2O_3$  needed to completely stabilize  $ZrO_2$  depends on the annealing  
 temperature to a considerable degree. A decrease in temperature during the

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L 17057-63

S/062/63/000/004/001/022

Phase relations in the system.....

polymorphous rearrangement of  $ZrO_2$  calcined with small additions of stabilizing oxides can be explained by the change in the repelling force between cations in the lattice of  $ZrO_2$  due to the formation of a monoclinical solid solution of  $ZrO_2$  of the substitution type. The degree of temperature decrease of the polymorphism depends on the value of this change. There are 7 figures and 2 tables.

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute of Chemistry of Silicates, Academy of Sciences USSR)

SUBMITTED: August 20, 1962

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ABSTRACT: The synthesis and the physical-chemical properties of lanthanum, neodymium and cerium zirconates were studied.

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**APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000928110014-5"**

ACCESSION NR: AP4041154

S/0020/64/156/004/0865/0868

AUTHOR: Boykova, A. I.; Toropov, N. A. (Corresponding member); Kuznetsov, A. K.

TITLE: Rare earth silicates as crystallochemical indicators. Solid solutions of tricalcium silicate with lanthanum oxyorthosilicate

SOURCE: AN SSSR. Doklady\*, v. 156, no. 4, 1964, 865-868

TOPIC TAGS: tricalcium silicate, lanthanum oxyorthosilicate,  $3\text{CaO} \cdot \text{SiO}_2$  sub 2,  $\text{La}$  sub 2 O sub 3  $\cdot \text{SiO}_2$  sub 2, solubility, solid solution, rare earth silicate, crystallochemical indicator, x ray analysis, crystalloptical analysis, differential thermal analysis, isomorphism, polymorphic transition, beta  $2\text{CaO} \cdot \text{SiO}_2$  sub 2, gamma  $2\text{CaO} \cdot \text{SiO}_2$  sub 2, heat treatment

ABSTRACT: Compositions of  $3\text{CaO} \cdot \text{SiO}_2$  with 1-25%  $\text{La}_2\text{O}_3 \cdot \text{SiO}_2$  were subjected to crystalloptical, x-ray, differential thermal and chemical analyses. The apparent limit of solubility of  $\text{La}_2\text{O}_3 \cdot \text{SiO}_2$  in the  $3\text{CaO} \cdot \text{SiO}_2$  is 5%, but an increase in light refraction was noted as the former was increased to 12%, indicating that saturation of the solid solution continues beyond the limit of phase homogeneity (but the process is slow in attaining equilibrium) and the limit of the solid solution is

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somewhat higher than 5%  $\text{La}_2\text{O}_3 \cdot 8\text{SiO}_2$ . Beta- and gamma-  $2\text{CaO} \cdot 8\text{SiO}_2$  were present in all the samples along with the solid solution, their amount increasing with an increase in  $\text{La}_2\text{O}_3 \cdot 8\text{SiO}_2$  content. This is explained by the isomorphic exchange  $3\text{Ca}^{2+} \rightarrow 2\text{La}^{3+}$ . The larger the amount of the  $\text{La}_2\text{O}_3 \cdot 8\text{SiO}_2$ , the greater the number of Ca vacancies and the greater the amount of Ca above the stoichiometric 3:1; 3-4% excess CaO over the stoichiometric was found. The formation of the solid solution is a complex process involving introduction of Ca ions into the lattice to fill the vacancies as well as substitution by La ions. Differential thermal analysis showed the complex polymorphic transformations depended on  $\text{La}_2\text{O}_3 \cdot 8\text{SiO}_2$  concentration and heat treatment. The annealed samples show essentially the same two endothermic effects in the 800-1000C range as pure  $3\text{CaO} \cdot 8\text{SiO}_2$ , shifted somewhat toward lower temperatures with increase in  $\text{La}_2\text{O}_3 \cdot 8\text{SiO}_2$  content; in the hardened compositions containing over 3%  $\text{La}_2\text{O}_3 \cdot 8\text{SiO}_2$  an additional endothermic effect appears. Examination of the intensity of the x-ray ionization curves showed the triplet lines characteristic of  $3\text{CaO} \cdot 8\text{SiO}_2$  appeared in annealed lanthanum-containing compositions, but the maxima shifted and the aspect of the lines changed with increasing  $\text{La}_2\text{O}_3 \cdot 8\text{SiO}_2$  content in hardened compositions. Orig. art. has: 1 table and 3 figures.

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ACCESSION NR: AP4041154

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FAN' FU-KAN [ 'an Fu-k'an ]; KUZNETSOV, A.K.; KELER, E.K.

Rare-earth zirconates and their physicochemical properties  
Report No.2: Praseodymium zirconate  $\text{Pr}_2\text{Zr}_2\text{O}_7$ . Izv. AN SSSR.  
Ser. khim. no.4:585-588 '65. (MIRA 18:5)

1. Institut khimii silikatov im. I.V.Grebenshchikova AN SSSR.

KUZNETSOV, A.L., podpolkovnik; VERKHITSKIY, V.O., polkovnik, red.

[Hero of the Soviet Union Andrei Efimovich Chertsov] Geroi  
Sovetskogo Soiuza Andrei Efimovich Chertsov. Moskva, 1960.  
15 p. (MIRA 14:2)

1. Moscow. TSentral'nyy muzey Sovetskoy Armii.  
(Chertsov, Andrei Efimovich, 1917- )

ARSENIN, N.D.; BUDKOVSKIY, N.G.; BOLOTIN, A.A.; BONARTSEVA, N.N.;  
BOGDANOVA, M.V.; GOLOVENKO, I.P.; IL'BITENKO, K.I.;  
KIRPONOS, Ye.M.; KARAPETYAN, K.G.; KIRSANOVA, I.A.;  
KUZNETSOV, A.L.; KORESHNIKOVA, N.F.; KORZHENEVSKAYA, T.I.;  
NEMIROV, N.G.; NIKONOVA, T.K.; NAZAROV, V.N.; PISAREVA, I.A.;  
POPOV, S.A.; PRONINA, N.A.; PAKHMAN, M.Ye.; REYPOLSKIY, S.N.;  
ROGACHEV, Yu.N.; SOSNINA, V.D.; STARSHINOV, B.M.; KHUDYAKOV,  
B.Ya.; SHELEKASOV, V.I.; PARKOV, V.P., podpolkovnik, red.;  
MURAV'YEV, A.I., polkovnik, red.; CHAPAYEVA, R.I., tekhn. red.

[Relics of military glory] Relikvii boevoi slavy. Moskva,  
Voenizdat, 1962. 166 p. (MIRA 15:8)

1. Nauchnyye sotrudniki Tsentral'nogo muzeya Sovetskoy Armii  
(for all except Murav'yev, Chapayeva).  
(Military museums)

S/114/60/000/004/003/009

E194/E355

AUTHORS: Dorfman, L.A., Candidate of Physicomathematical  
Sciences and Kuznetsov, A.L., Engineer

TITLE: Influence of Water Injection on the Intake of the  
Axial-flow Compressor of a Gas Turbine

PERIODICAL: Energomashinostroyeniye, 1960, No. 4,  
pp. 12 - 15

TEXT: A compressor output may be increased by wet  
compression. Injection of a water spray into the compressed  
air causes the compression process to approach the isothermal,  
so that the work required to compress 1 kg of air becomes  
appreciably less than under ordinary conditions. Calculations  
show that wet compression permits considerable reduction in  
machine size for a given effective output and if regeneration  
is used there is an appreciably lower heat consumption for  
power generation. However, wet compression requires consid-  
erable quantities of pure water which is subsequently  
discharged to atmosphere. Saturated wet compression is, however,  
an ideal case. In practice, the water drops may be in the

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compressor for only about 0.015 sec, and because of this short-time and the small temperature difference between the drop and the surrounding gas the actual process of wet compression may be very different from the ideal. A method of calculating this difference is briefly described. The effectiveness of wet compression is also impaired by uneven distribution of water drops over the height of the blades resulting from centrifugal force, by impact between the drops and blade surface, and by contamination of the blading by deposits from the water. To make the best use of wet compression it is necessary to have a specially designed meridional profile of the blading. Work on water injection in the axial-flow compressor of a gas turbine has been described by the Allis Chalmers Company. The hard water used gave considerable deposits on the blading. In view of the lack of experimental data confirming the effectiveness of water injection in an axial-flow compressor

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tests were carried out on the experimental gas turbine type GT-550 (GT-550) of the Nevskiy mashinostroitel'nyy zavod (Neva Engineering Works). The axial compressor of this set has 16 stages with 50% reaction, and a stage compression ratio of 3.6; the output is 100 t/h. Water is injected through five mechanical nozzles with a total flow of 1 348 kg/h. The mean drop diameter was estimated to be 40  $\mu$ . The distribution of water droplets across the section was studied by measuring the temperature distribution along the radius in several stages, using thermocouples. The graphs show the characteristic bend in the temperature distribution along the blade height. It is due to centrifugal displacement of the water droplets to the periphery, which is accordingly best cooled. There is also a low-temperature zone near the blade roots, where water comes into direct contact with the rotor body and the blade roots. Accordingly, the concentration of

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water droplets is not uniform over the stage section, which reduces the effectiveness of wet compression. Measurements were made to show changes in the isentropic efficiency of wet compression. The formulae used are given and the results are plotted. It is found that there is appreciable reduction in efficiency from this cause. Nevertheless, the work expended in compressing one kg of air is lower for wet compression than for dry, even in the worst case. The increase in output of the compressor is also greater than the amount of water injected. This means that the compressor output is increased by wet compression. After fifty hours of operation with water injection the compressor efficiency measured with dry compression was reduced from 85 to 83% as a result of deposit formation from the water on the blades; later, the rate of efficiency drop diminished. The water hardness was 65 mg/litre. Analysis

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showed that only half the deposits were water-soluble, so washing would be of little use; part of the deposits result from pick-up of oil and from dust in the air. Very slight erosion was observed in the first stage, evidently because the water-particle sizes were not all small enough. From the test results given it is possible to construct compressor characteristics for various amounts of water injection and to calculate the effect of injection on the operation of the gas turbine set as a whole. Calculated curves of power increase and efficiency as compared with dry compression are plotted and the experimental points were close to these curves. It is shown that the greatest increase in output and efficiency is observed with relatively small amounts of water injection, because under such circumstances the isentropic efficiency of wet compression is reduced comparatively little. Accordingly, the tests have

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demonstrated the possibility of increasing the output of a gas turbine by injecting water into the compressor intake. The possibilities of such power increases are greatly limited by the reduction in axial velocity of the last stages. When the air temperature is below or near freezing point, water cannot be injected because of icing in the first stages but in hot dry regions, water<sup>injection</sup> may be particularly effective. For example, with an air temperature of 35 °C and relative humidity of 40% treatment which reduces the air temperature to 27.2 °C increases the output of the turbine by about 7%.

There are 6 figures, 1 table and 8 references: 3 Soviet and 5 non-Soviet.

Acknowledgments are expressed to Candidate of Technical Sciences L. A. Kuznetsov for directing the work and to Engineers K. G. Shkutov, G. A. Kruglikov, L. I. Merkis and A. C. Lebedev for their assistance.

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DORFMAN, L.A., kand.fiziko-matematicheskikh nauk; KUZNETSOV, A.L., inzh.

Review of I.T.Shvets and E.P.Dyban's book "Air cooling of  
gas-turbine rotors." Energomashinostroenie 6 no.3:40-45  
Mr '60. (MIRA 13:6)

(Gas turbines--Cooling)  
(Shvets, I.T.) (Dyban, E.P.)

94913

S/096/60/000/011/003/018

E073/E135

26.2/20  
AUTHOR:

Kuznetsov, A.L. (Engineer)

TITLE:

Increasing the Power of a Gas Turbine Installation by  
Injecting Water into the Combustion Chamber

PERIODICAL: Teploenergetika, 1960, No 11, p 40

TEXT: Experiments were carried out on increasing for short durations the power output of an experimental ГТ-550 (GT-550) gas turbine above that attainable for a given maximum gas temperature. The installation consisted of a 5-stage turbine, a 16-stage axial compressor with a steep characteristic, a 3-way combustion chamber with a petal-shaped mixer and a tubular regenerator. The compression ratio was 3.6 with a delivery G<sub>B</sub> equalling 100 lb/hr. The regeneration factor  $\mu = 0.33$ , and the power output was 1000 kW for 5000 r.p.m. The relative turbine efficiency  $\eta_T = 0.84$ , and the compressor efficiency  $\eta_{ad.c} = 0.85$ .

For the purpose of injecting the water into the combustion chamber four mechanical nozzles with a maximum total water delivery of 2100 kg/hr were fitted, in addition to five fuel nozzles, in such a way that evaporation of the water drops took place in the focus of the combustion zone. The performance and the fuel consumption (B)  
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as a result of water injection were determined by calculation and also experimentally. It was found that for all conditions of water injection the combustion was stable and no flame pulsations were observed. Special chemical analysis of the gases emanating from the combustion chamber for CO and  $C_nH_m$  contents for a water/fuel consumption ratio of 2.35% showed absence of incomplete combustion. According to calculated and experimental results, for a 1% water injection the increase in power is 7.6% if the temperature of the gas at the turbine input  $t_1$  is 500 °C, 6.4% if the temperature is 625 °C, and 4.5% if the temperature is 700 °C (the value of 6.4% at 625 °C is quoted from BBC Mitteilungen No. 4/5, 1957). Thus the increase in power is greater at lower gas temperatures. The problem of salt deposition on the turbine blade and suitable water treatment will have to be clarified during practical operation. A graph is included of the relative increase of the power and the fuel consumption as a function of the amount of water injected into the combustion chamber for a constant temperature  $t_1 = 500$  °C, and also a graph showing

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